

Monograph of the Hawaiian Species of *Achyranthes* (Amaranthaceae)
Hawaiian Plant Studies 56¹

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THIS IS A REVISION OF THE GENUS *Achyranthes* in the Hawaiian Islands, with special attention to the endemic species.

The first notice of *Achyranthes* in the Hawaiian Islands was given by Gaudichaud in his introductory description of the ecology of the islands. In this he merged into one his observations made on Hawaii, west Maui, and Oahu. In his description of the second region, that one inland and next above the beach, in the region where one met the first indigenous plants, such as *Cocculus*, *Bidens*, *Erythrina*, and *Dodonaea*, he encountered (1827:93) “un *achyranthes*, arbrisseau de 4 à 6 pieds; . . .” He did not include this in the systematic part of his volume, but it was soon described by Martius ex Moquin in De Candolle (1849:316) as *Achyranthes splendens*. From other evidence it is certain that Gaudichaud collected the type of this species in the mountains of west Maui, above

Lahaina, when his ship the *Uranie* was anchored there.

Horace Mann, Jr., in his Enumeration of Hawaiian Plants (1867:200), included *Achyranthes splendens* and *A. mutica* Gray, which was then unpublished but shown to him by his professor, Asa Gray, and *A. bidentata* Bl., an adventive weed, the local specimens now considered to be *A. aspera* L. These same species were included and described by Hillebrand (1888:371), and to *A. splendens* he added the new var. *reflexa* Hbd., and var. *rotundata* Hbd. No later general treatments of the Hawaiian species have been published.

All the Hawaiian species are members of the section *Achyranthes*, and *A. aspera* L. is the lectotype of the genus and of this section.

Unless otherwise indicated, all specimens here cited are in the Bernice P. Bishop Museum, Honolulu, (BISH).

KEY TO SPECIES

- 1. Herbage densely white tomentose throughout,
 - 2. Sepals (8–) 9–10.5 mm long; floral lateral bracts 5–7 mm long; rhachis bracts 5–6 mm long; flowers divergent, deciduous. Maui, Lanai. 10. *A. splendens*.
 - 2. Sepals and bracts mostly shorter,
 - 3. Sepals 5.5–6 mm long; rhachis hairs 2.5–3 mm long; old flowers reflexed, long persistent; spikes 5–17 cm long; hairy rhachis 5 mm in diameter. Leeward Atolls. 1. *A. atollensis*.
 - 3. Sepals longer; rhachis hairs 0.6–1 mm long; flowers early deciduous,
 - 4. Sepals 8 mm long, sparsely pilosulous ciliate; floral lateral bracts 1.6 mm wide, glandular atomiferous; rhachis hairs 0.8–1 mm long. Lanai. 4. *A. lanaiensis*.
 - 4. Sepals 6.5–7.5 (–9) mm long, nonciliate; floral lateral bracts 1.8–2.5 mm wide, ciliate; rhachis hairs 0.6–1 mm long,
 - 5. Sepals 6.5–9 mm long, glandular atomiferous; floral lateral bracts 4.8–5 mm long, ciliate only near the base; rhachis bracts 4–4.2 mm long; rhachis hairs 0.6 mm long, straight. Oahu. 9. *A. rotundata*.
 - 5. Sepals 7–7.5 mm long,

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6. Floral lateral bracts 4 mm long, 1.8 mm wide, ciliate on the membranous part; rhachis bracts 3–3.5 mm long; rhachis hairs 2–2.5 mm long, crinkled. Molokai..... 8. *A. reflexa*.
6. Floral lateral bracts 3.5–4 mm long, 2.5 mm wide, nonciliate; rhachis bracts 4 mm long, ovate, long acuminate; rhachis hairs 1 mm long, straight. Lanai. 5. *A. maneleensis*.
1. Herbage green, glabrous, or but slightly and inconspicuously pubescent, or the blades so above,
7. Sepals 6–7 mm long; blades lanceolate, acute; lateral floral bracts, a spine 4.8–5 mm long, 1.7 mm wide, with 2 basal, nearly separate membranous ovate expansions 0.6–1 mm long; rhachis hairs 0.2 mm long, appressed. Adventive..... 2. *A. fruticosa*.
7. Sepals 3.6–4.5 mm long,
8. Floral lateral bracts 3.5 mm long, 1 mm wide, the awn as long as or longer than the membranous base; spikes elongate, rhachis hairs 0.5 mm long, crinkled, divergent. Adventive. 3. *A. indica*.
8. Floral lateral bracts 1.7–2.3 mm long, without a projecting awn or merely mucronulate; spikes less than 1.5 cm long,
9. Leaves nearly glabrous; petioles 3–12 mm long; lateral floral bracts 2–2.3 mm long, 1.4 wide, suborbicular, mucronulate; rhachis bracts 1 mm long, 0.8 mm wide. Kauai..... 6. *A. mutica*.
9. Leaves densely appressed pilosulous below; petioles 3–6 mm long; lateral floral bracts 1.8–2 mm long, elliptic, acute, 0.3–0.4 mm wide; rhachis bracts 1.5 mm long, 1.3 mm wide. Hawaii. 7. *A. Nelsonii*.

1. *Achyranthes atollensis* sp. nov.

A. splendens Mart., var. *reflexa* sensu Christophersen & Caum, B. P. Bishop Mus. Bull. 81:26, 1931; sensu Lamoureux, Atoll Res. Bull. 79:3, 1961; and 97:4, 1963; sensu Woodward, Atoll Res. Bull. 164:28, 1972, non Hbd. (1888).

Figure 1

DIAGNOSIS HOLOTYPE: Frutex usque ad 2 m altus est, partibus omnibus a pilosi-tomento denso albo adpresso velatis, ramulis foliosis 3–4 mm diametro quadrangularibus, ramis 5–8 mm diametro subbadiis paululum tomentosis, internodis 1–4.5 cm longis, cicatricibus foliorum 3–4 mm latis lunatis apicibus obtusis, petiolis 3–7 mm longis supra canaliculatis, laminis 2–5.2 cm longis 1.2–3.8 cm latis obovatis ad ellipticis apice obtuso vel subacuto basi cuneata crasse firmis chartaceis nervis secundariis vix evidentis dense albi-tomentosis supra subviridibus, inflorescentiis terminalibus, pedunculo 15–25 mm longo, spicis 8–17 cm longis 12–14 mm latis,

rhachidi dense albi-tomentoso cum pilis 2.5–3 mm longis persistentibus hinc rhachidi ut videtur 4–7 mm diametro, bracteis rhachidis 3.2–4 mm longis 1–1.5 mm latis anguste lanceolatis membranaceis 1-costatis, floribus obscure viridibus, bracteis lateralibus floris 3.7–4.2 mm longis 1.6 mm latis corpore ovato membranaceo glabro mid-nervo incrassato in 1–1.5 mm projectento, sepalis 5.5–6 mm longis 1.6 mm latis lanceolatis glabris 3-costatis marginibus lateralibus membranceis, sepalis exterioribus 2 mm latis lanceolatis subviridibus scariosis glabris l-nervosis nonciliatis, androecio cum tubo filamentarum 0.6 mm longo membranaceo, 5 staminibus cum filamentis liberis 0.6–0.7 mm longis subulatis glabris versatilibus, antheris 0.6–0.7 mm longis 0.3 mm latis oblongi-ellipsoideis apicibus retusis, pseudostaminodiis 0.6–0.7 mm longis fere ad basim fimbriatis cum lobis plerumque 5 lancei-linearibus, ovario 0.9 mm longo obovoideo, stylo 1.8 mm longo glabro, stigmatibus truncato paulum incrassato, capsulo obovoideo, semine 0.9 mm longo obovoideo apice truncato obscure rubri-badio laevi.

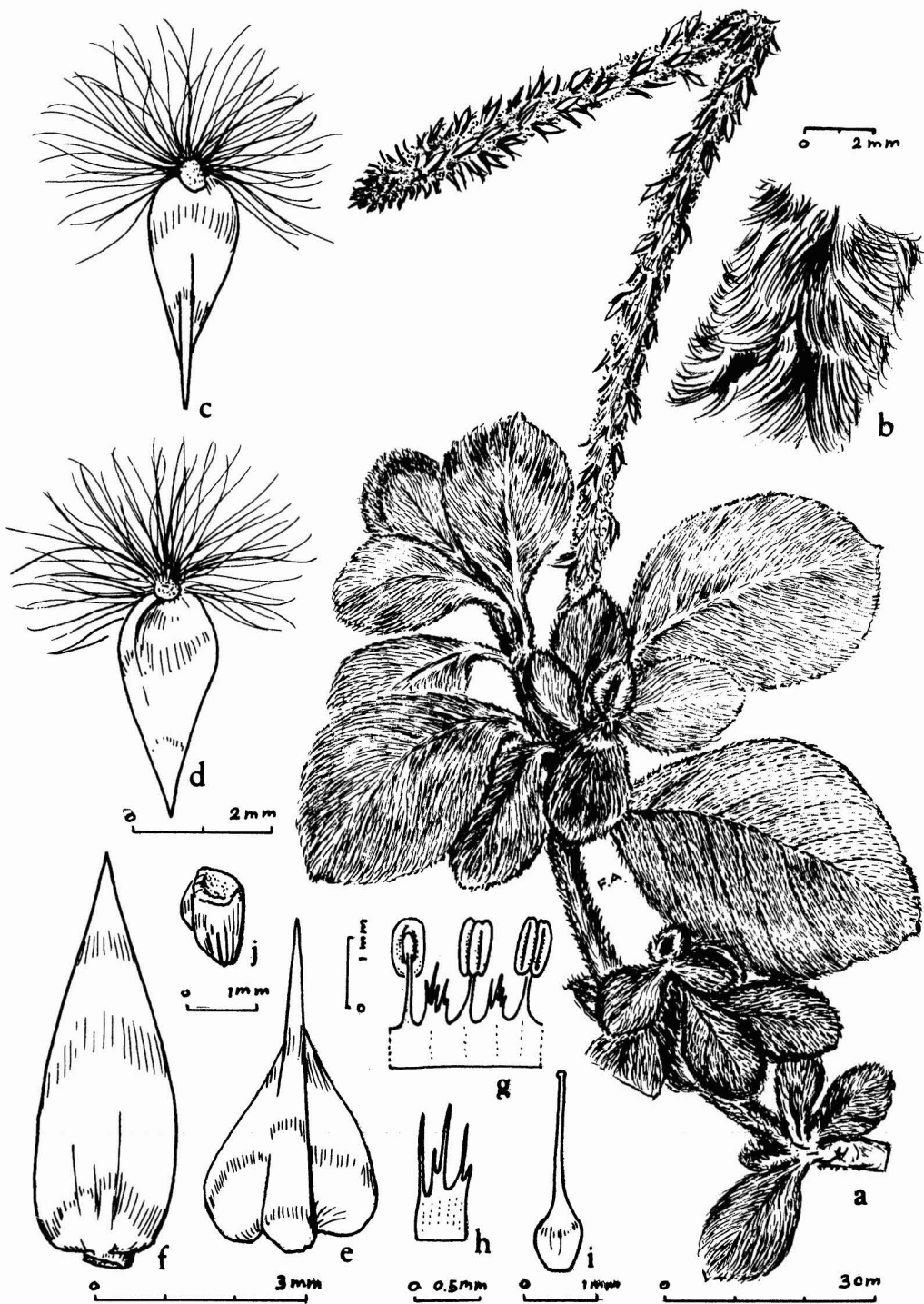


FIGURE 1. *Achyranthes atollensis* St. John, from holotype. *a*, habit, $\times 1$; *b*, rhachis with hairs, $\times 5$; *c*, rhachis bract, distal side, $\times 10$; *d*, rhachis bract, proximal side, $\times 10$; *e*, lateral floral bract, outer view, $\times 10$; *f*, outer sepal, $\times 10$; *g*, androecium, $\times 10$; *h*, pseudostaminodium, $\times 20$; *i*, pistil, $\times 10$; *j*, seed, $\times 10$.

DIAGNOSIS OF HOLOTYPE: Shrub to 2 m tall; all parts covered by a dense white appressed pilose tomentum; leafy stems 3–4 mm in diameter, square; older branches 5–8 mm in diameter, somewhat tomentose, the bark brownish; internodes 1–4.5 cm long; leaf scars 3–4 mm wide, lunate with blunt ends; petioles 3–7 mm long, channeled above; blades 2–5.2 cm long, 1.2–3.8 cm wide, obovate to elliptic, the apex obtuse or subacute, the base cuneate, thick firm chartaceous, the secondary veins almost invisible, densely white hairy, but above slightly greenish; inflorescences terminal; peduncle 15–25 mm long; spike 8–17 cm long, 12–14 mm in diameter; rhachis densely white tomentose with persistent hairs 2.5–3 mm long, these making the rhachis appear 4–7 mm in diameter; rhachis bracts 3.2–4 mm long, 1–1.5 mm wide, narrowly lanceolate, membranous, 1-ribbed; flowers dark green; floral lateral bracts 3.7–4.2 mm long, 1.6 mm wide, the body ovate, membranous, glabrous, exceeded by the thickened midrib which projects for 1–1.5 mm; sepals 5.5–6 mm long, 1.6 mm wide, lanceolate, glabrous, 3-ribbed, with membranous lateral margins, the outer ones 2 mm wide, lanceolate, greenish, scarious, glabrous, 1-nerved, nonciliate; androecium with a filament tube 0.6 mm long, membranous, the 5 stamens with their free filament tips 0.6–0.7 mm long, subulate, glabrous, versatile; anthers 0.6–0.7 mm long, 0.3 mm wide, oblong-ellipsoid, retuse at each end; pseudostaminodia equaling the filaments, fimbriate to near the base with mostly 5 lance linear segments; ovary 0.9 mm long, obovoid; style 1.8 mm long, glabrous; stigma truncate, slightly the larger; capsule obovoid; seed 0.9 mm long, obovoid, the apex truncate, dark reddish brown, smooth.

HOLOTYPE: Hawaiian Leeward Islands, Ocean (Kure) Island, central plain, 4 m elev., only 3 or 4 bushes seen, 1 April 1923, *E. L. Caum* 17 (BISH).

ISOTYPES: (A, US)

SPECIMENS EXAMINED: Hawaiian Leeward Islands, Kure Island: 22 September 1961, *C.*

H. Lamoureux 1,875 (BISH); northeast end, 12 September 1961, *Lamoureux* 1,894 (BISH); east side, 14 September 1964, *C. R. Long* 2,239 (HAW, US).

Midway Island: on sand mounds, fairly common, 22 August 1902, *W. A. Bryan* (BISH).

Pearl and Hermes Reef: in mats of *Tribulus cistoides* in coral rubble, interior of the island, only two seen, 21 September 1966, *S. Carlquist* 2,314 (BISH); only two clumps seen, 27 April 1923, *E. L. Caum* 50 (BISH, US); north island, depression at middle of the island, with *Solanum* and *Eragrostis*, 17 September 1969, *Long* 2,298 (BISH, HAW, US); north island, sea level, 18 May 1923, *G. P. Wilder* 3 (BISH).

Laysan Island: north side, small patch on sand, April 1903, *W. A. Bryan* (BISH, US); 6 July 1896, *Schauinsland* (BISH).

DISCUSSION: There is a specimen labeled "Marcus Island, July 30–Aug. 7, 1902, *W. A. Bryan*" (BISH). It is not listed by Bryan in his Monograph of Marcus Island (1903). In size and total aspect, this specimen is an exact match for another sheet collected by Bryan on Laysan in April 1903. Scanning his monograph has revealed that he landed on Marcus on 30 July 1902 and was on Midway on 21–22 August. It seems evident that this specimen also came from Midway Island and not from Marcus.

There are no collections of this species from the southeastern islands of the chain, even on those with an atoll ring surrounding a volcanic core. This species is a part of the native flora of four of the northwestern atolls of the Hawaiian Leeward group. It still occurs on Kure, and on Pearl and Hermes. On Midway it was last collected in 1902; on Laysan in 1903, and it is doubtless extinct on these two islands.

The reflexed flowers become tangled in the white hairs of the rhachis and thus are long persistent. In his field notes on the holotype, Caum recorded, "flowers red, scattered in tall hairy spikes." The flowers on all the herbarium specimens are pale brownish. In a good Kodachrome slide taken on Kure by *C. H. Lamoureux*, the flowers are dark

green. The reddish color may occur at some stage of the flowering and be fugitive.

Specimens of this species have been available since 1896, and six collections of it were cited as *A. splendens* Martius, var. *reflexa* Hbd., by Christophersen and Caum in their study of the Vascular Plants of the Leeward Islands (1931:26–27). They stated that, “The specimens conform very closely with Hillebrand’s var. *reflexa*, of which we have examined a part of the type material deposited in Bernice P. Bishop Museum. Hillebrand states that the median nerve of the bracts is not prolonged into an awn. This does not, however, fit his specimen, which has awned bracts just as our specimens have.”

The present writer has also compared the plants from the Leeward Islands with *A. splendens*, var. *reflexa*, now *A. reflexa*, of Molokai, and he finds them different in general aspect, and in numerous technical, but significant details. He finds that these plants from the northwestern atolls represent a very distinct species.

The new epithet is an adjective meaning growing on an atoll, and the name is chosen because the species is native to four of the atolls of the Hawaiian Leeward Islands.

2. *Achyranthes fruticosa* Lam., Encyc. Méth. Bot. 1:545–546, 1785; DC., Prodr. 13(2):314, 1849.

A. bidentata sensu Hbd. (1888), non Bl. (1826).

BRIEF DESCRIPTION: Stems appressed puberulent; leaves short petioled, ovate, 3.5–5 cm long, acuminate, green, and but remotely minutely pubescent; spikes 15–30 cm long, flexuous; rhachis hairs sparse, 0.2 mm long, appressed puberulent; rhachis bracts 3 mm long, 0.7 mm wide, linear lanceolate, floral lateral bracts with the awn 4.8–5 mm long, the membranous body 0.6–0.8 mm long, 1.7 mm wide, glabrous; outer sepal 6 mm long, 1.8 mm wide, lanceolate, glabrous.

Lanai: 1851–1855, *J. Remy* 209 (BISH, P).

An infrequent weed, introduced from the East Indies.

3. *Achyranthes indica* (L.) Mill., Gard. Dict.,

Achyranthes no. 2, 1768; O. & I. Degener, Fl. Haw. Fam. 112:3/15/56; St. John, Pac. Trop. Bot. Gard., Mem. 1:151, 1973.

A. aspera L., var. *indica* L., Sp. Pl. 204, 1753.

A. aspera sensu Hbd. (1888), non L. (1753).

Centrostachys indica (L.) Standl., J. Wash. Acad. Sci. 5:75, 1915.

BRIEF DESCRIPTION: Twiggy annual 0.5–2 m tall; branches cinereous; leaves petioled; blades 2–7.5 cm long, rhombic-orbicular to obovate-orbicular, the apex mostly acute, at first pilose sericeous, but glabrate and green above; spikes 5–40 cm long; rhachis hairs 0.5 mm long, pilose, crinkled; rhachis bracts 2.5 mm long, 0.8–1 mm wide, lanceolate, glabrous; floral lateral bracts 3–3.5 mm long, 1 mm wide, awn-tipped, the body 0.8–1 mm long, membranous, glabrous; outer sepal 4–4.5 mm long, 1.4 mm wide, lanceolate, glabrous.

An introduction from tropical Asia, here before 1886. It is a common weed in the drier lowland, by roadsides and in fields.

4. *Achyranthes lanaiensis* sp. nov.

Figure 2

DIAGNOSIS HOLOTYPE: Frutex 1–2 m altus est, ramulis dense adpresse albi-pilosulis, ramulis foliosis 0.6–2 mm diametro subquadratis a pilis albis pilosis adpressis velatis, ramis vetustioribus 3–6 mm diametro glabratibus, cortice pallide badiis sublaevibus, ramis ducentibus cum internodis 2–4 cm longis, ramulis floriferis cum internodis 4–10 mm longis, cicatricibus foliorum 2–4 mm latis anguste lunatis, cicatricibus fascicularum 5 in arco, petiolis 5–15 mm longis supra profunde canaliculatis dense adpresse albi-pilosulis, laminis 3.5–10.5 cm longis 2.5–7.3 cm latis late ellipticis apice obtuso basi cuneata decurrenti, chartaceis supra subviridibus infra albis sed in paginis ambis dense adpresse albi-pilosulis nervis lateralibus 6–9 in dimidio quoque curvatis adscendentibus, inflorescentia terminali, pedunculo 7 mm longo dense adpresse albi-pilosulo, spicis 3–8 cm longis, rhachidi dense adpresse albi-

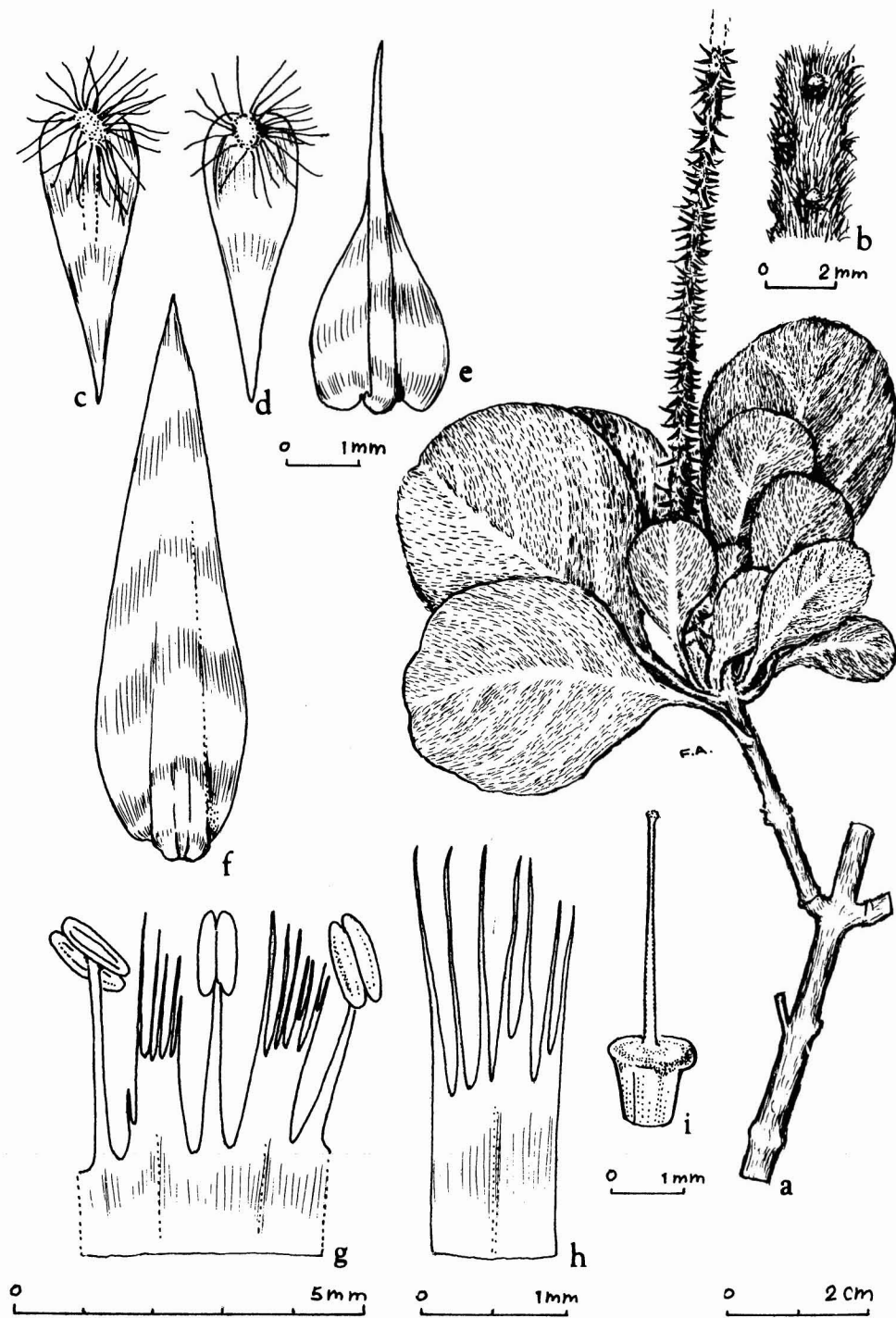


FIGURE 2. *Achyranthes lanaiensis* St. John, from holotype. *a*, habit, $\times 1$; *b*, rhachis with hairs and bract scars, $\times 5$; *c*, rhachis bract, distal side, $\times 10$; *d*, rhachis bract, proximal side, $\times 10$; *e*, lateral floral bract, outer view, $\times 10$; *f*, outer sepal, $\times 10$; *g*, androecium, $\times 10$; *h*, pseudostaminodium, $\times 20$; *i*, pistil, $\times 10$.

pilosulus cum pilis 0.8–1 mm longis, bracteis rhachidis 3.5–4.5 mm longis 1–1.4 mm latis lanceolatis acuminatis pallidis scariosis cum midnervo crasso rigido alibi glabro in basi in paginis ambis cum disco incrassato albipiloso, bracteis lateralibus floris 4–5.3 mm longis corpore 2.7 mm longo 1.5 mm lato late lanceolato membranaceo ciliolato midnervo incrassato elevato et in arista 2 mm longa rigida straminea extrinsecus curvatis projectenti, sepalis 7.5–8 mm longis eis exterioribus 2 mm latis anguste lanceolatis subviridibus scariosis glabris trinervosis paululum pilosuli-ciliatis, androecio cum tubo filamentarum 1.5 mm longo membranaceo, 5 staminibus cum apicibus liberis 1.7–1.8 mm longis subulatis versatilibus, antheris 0.8 mm longis 0.3 mm latis anguste ellipsoideis biretuis, pseudostaminodiis fere antheras aequalibus ultra medium fimbriatis in 7 lobis linearibus, ovario 1 mm longo in apice expanso discoideo, stylo 3 mm longo filiformi, stigmati hemisphaerico, fructu incognito.

DIAGNOSIS OF HOLOTYPE: Shrub 1–2 m tall; young shoots densely appressed white pilosulous; leafy stems 0.6–2 mm in diameter, squarish in section, concealed by the appressed ascending white pilosity; older branches 3–6 mm in diameter, glabrate, the bark pale brown, smoothish; leading shoots with internodes 2–4 cm long; flowering shoots with internodes 4–10 mm long; leaf scars 2–4 mm wide, narrowly lunate; bundle scars 5, in a curved line; petioles 5–15 mm long, deeply channeled above, densely white appressed pilosulous; blades 3.5–10.5 cm long, 2.5–7.3 cm wide, broadly elliptic, the apex obtuse, the base cuneate decurrent, chartaceous, above greenish, below white, but both sides densely appressed white pilosulous, the lateral veins 6–9 in each half, curved ascending; inflorescences terminal; peduncle 7 mm long, densely white appressed pilosulous; spike 3–8 cm long; rachis densely white spreading pilosulous with hairs 0.8–1 mm long; rhachis bracts 3.5–4.5 mm long, 1–1.4 mm wide, lanceolate, acuminate, pale, scarious, with a thick stiff midrib, glabrous elsewhere but at base on

both sides white pilose from a discoid swelling; floral lateral bracts 4–5.3 mm long, the body 2.7 mm long, 1.5 mm wide, broadly lanceolate, ciliolate, membranous, the thickened elevated midrib projecting 2 mm as a rigid stramineous out-curving awn, the margins minutely ciliolate; sepals 7.5–8 mm long, the outer ones 2 mm wide, narrowly lanceolate, greenish, scarious, glabrous, 3-nerved, sparsely pilosulous ciliate; androecium with a filament tube 1.5 mm long, membranous; the 5 stamens with their free filament tips 1.7–1.8 mm long, subulate, versatile in attachment; anthers 0.8 mm long, 0.3 mm wide, narrowly ellipsoid, retuse at each end; pseudostaminodia nearly equaling the anthers, fimbriate to below the middle into 7 linear lobes; ovary 1 mm long, expanded and discoid at top; style 3 mm long, filiform; stigma hemispheric; fruit unknown.

HOLOTYPE: Hawaiian Islands, Lanai Island, Maunalei Gulch, Kauiki, small side gully along stream bed, abundant, 300 m alt., 2 December 1935, *F. R. Fosberg* 12,567 (BISH).

SPECIMENS EXAMINED: Hawaiian Islands, Lanai Island, Manele Landing, on the seashore, August 1910, *J. F. Rock* 8,210 (BISH, GH, P).

The new epithet is formed from the name of the type locality, Lanai, and *-ensis*, the Latin adjectival place suffix.

5. *Achyranthes maneleansis* sp. nov.

Figure 3

DIAGNOSIS HOLOTYPE: Frutex ultra 50 cm latus est, novellis dense adpresse albipilosuli-lanatis, caulibus foliosis 1–3 mm diametro quadratis a indumento piloso albo velatis, ramis vetustioribus 4–10 mm diametro subteretibus denique glabratis badiis sublaevibus sed cum rimis longitudinalibus, internodis caulis principalis 1.2–5.5 cm longis sed in ramula axillari brevissimis, cicatricibus foliorum 1.5–2.5 mm latis late lunatis, cicatricibus fascicularum 7, foliis dense adpresse albipilosuli-lanatis, petiolis 3–10 mm longis supra late canaliculatis, laminis

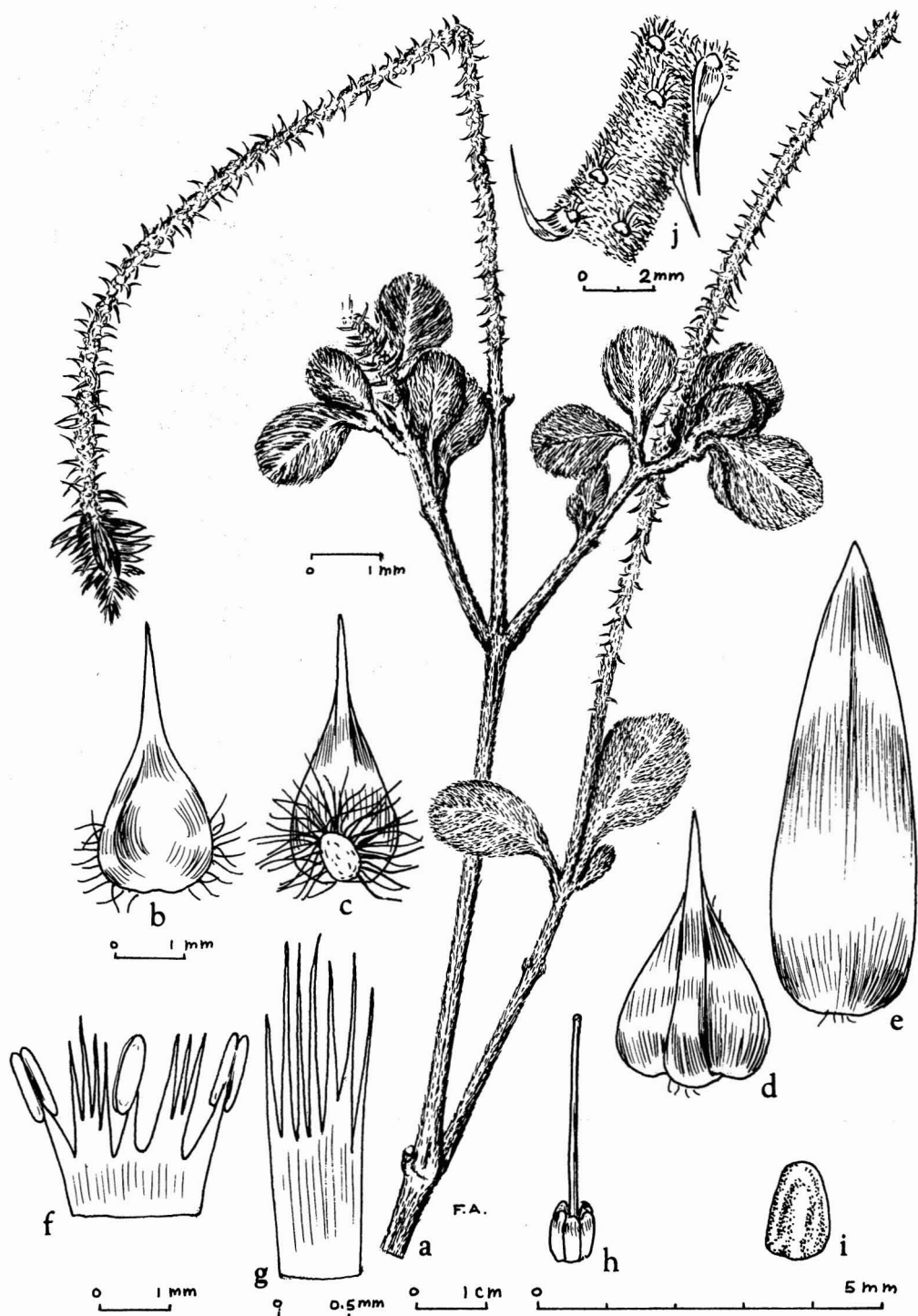


FIGURE 3. *Achyranthes maneileensis* St. John, from holotype. *a*, habit, $\times 1$; *b*, rhachis bract, distal side, $\times 10$; *c*, rhachis bract, proximal side, $\times 10$; *d*, lateral floral bract, outer view, $\times 10$; *e*, outer sepal, $\times 10$; *f*, androecium, $\times 10$; *g*, pseudostaminodium, $\times 20$; *h*, pistil, $\times 10$; *i*, seed, $\times 10$; *j*, rhachis with hairs and bracts, $\times 10$.

1.5–3.5 cm longis 9–36 mm latis late ellipticis obtusis cuneatis et breve decurrentibus crasse chartaceis supra subviridibus sed infra albis, nervis secundariis 6–8 in dimidio quoque curvati-adscendentibus paullo manifestis, inflorescentiis terminalibus, pedunculo 7–16 mm longo dense pilosulo, spicis 4–18 cm longis, rhachidi dense divergente albi-pilosulo cum pilis 1 mm longis, bracteis rhachidis 4 mm longis 1 mm latis late lanceolatis midnervo incrassato et in spina longa protruso lateribus scariosis pallidis bracteis longe persistentibus mox reflexis proxime glabris distale proxima basem albi-pilosis, bracteis lateralibus floris 3.5–4 mm longis 2.5 mm latis midnervo incrassato et in mucro 1.5 mm longo curvato projectenti, corpore 2–2.5 mm longo late ovato scarioso non ciliato, sepalis 7–7.5 mm longis 1.6–2 mm latis anguste lanceolatis glabris, androecio cum tubo filamentarum 0.8 mm longo membranceo, 5 staminibus cum apice libero filamentis 0.6 mm longo subulato versatili, antheris 0.8 mm longis ellipticoblongis loculis binis parallelis et plerumque liberis, pseudostaminodeis quam antheras longioribus et fimbriatis in plerumque 5 lobis filiformibus, stigmati truncato, capsula 1 mm longa subglobosa proxima apicem circumscissili, semini 1.4 mm longo ovoideo compresso badio.

DIAGNOSIS OF HOLOTYPE: Shrub, more than 50 cm tall; young shoots densely white appressed pilosulous lanate; leafy stems 1–3 mm in diameter, square in cross section, concealed by the white pilosity; older branches 4–10 mm in diameter, subterete, finally glabrate, brown, smoothish, but with longitudinal fissures; internodes on the main stems 1.2–5.5 cm long, but very short on axillary reduced branchlets; leaf scars 1.5–2.5 mm wide, broadly lunate; bundle scars 7; foliage densely white appressed pilosulous lanate; petioles 3–10 mm long, broadly channeled above; blades 1.5–3.5 cm long, 9–36 mm wide, broadly elliptic, obtuse, the base cuneate and shortly decurrent, thick chartaceous, above greenish, but below white, secondary veins 6–8 in each half, curved ascending, rather obscure; in-

florescences terminal; peduncle 7–16 mm long, densely pilosulous; spikes 4–18 cm long; rhachis densely white spreading pilosulous with hairs 1 mm long; rhachis bracts 4 mm long, 1 mm wide, broadly lanceolate, with a thickened midrib which projects as a long spine, and pale scarious sides, long persistent and becoming reflexed, glabrous proximally but distally white pilose near the base; floral lateral bracts 3.5–4 mm long, 2.5 mm wide, the thickened midrib projecting as a curved awn 1.5 mm long, the body 2–2.5 mm long, broadly ovate, scarious, non-ciliate; sepals 7–7.5 mm long, 1.6–2 mm wide, narrowly lanceolate, glabrous; androecium with a filament tube 0.8 mm long, membranous; the 5 stamens with the free filament tip 0.6 mm long, subulate, versatile in attachment; anthers 0.8 mm long, elliptic-oblong, the 2 cells parallel and free for most of their length; pseudostaminodia exceeding the anthers, fimbriate divided into mostly 5 linear lobes; ovary 0.8 mm long, subglobose; style 3 mm long, filiform; stigma truncate; capsule 1 mm long, subglobose, circumscissile near the apex; seed 1.4 mm long, ovoid, compressed, brown.

HOLOTYPE: Hawaiian Islands, Lanai Island, Manele, on the seashore, August 1910, *J. F. Rock* 8,210 (BISH).

ISOTYPES: (A, GH, US)

The new epithet is formed from the name of the type locality, Manele, and *-ensis*, the Latin adjectival place ending.

6. *Achyranthes mutica* Gray in Mann, Amer. Acad. Arts Sci., Proc. 7:200, 1867; Hbd., Fl. Haw. Is. 373, 1888; Drake, Ill. Fl. Ins. Mar. Pac. 7:271, 1892; St. John, Pac. Trop. Bot. Gard., Mem. 1:151, 1973.

Figure 4

ORIGINAL DIAGNOSIS: "Glabella; caule fruticoso ramosissimo; foliis obovatis spatulatis seu fere lanceolatis obtusis viridibus in petiolum gracilem attenuatis; spicis ovatis sessilibus densifloris nunc paucifloris, rhachidi subvillosa; bracteis bracteolisque late ovatis mucronulatis flore patente 2–3-plo brevioribus; sepalis 5 ovato-lanceolatis ob-

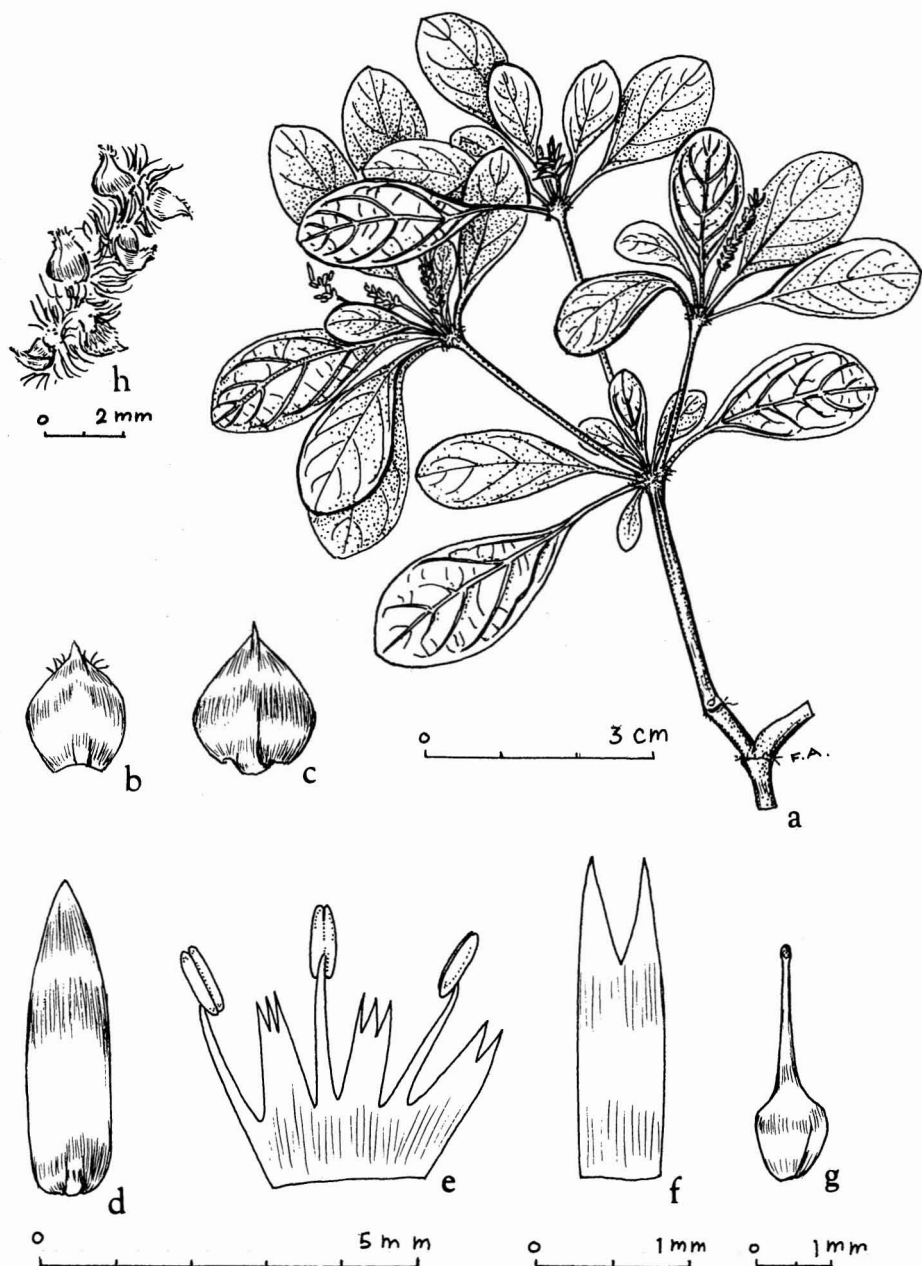


FIGURE 4. *Achyranthes mutica* Gray, from holotype. a, habit, $\times 1$; b, rhachis bract, proximal side, $\times 10$; c, rhachis bract, distal side, $\times 10$; d, outer sepal, $\times 10$; e, androecium, $\times 10$; f, pseudostaminodium, $\times 20$; g, pistil, $\times 10$; h, rhachis with hairs and bracts, $\times 5$.

tusiusculis coriaceo-paleaceis trinerviis; staminibus anteriferis 5; staminodiis oblongis apice laciniatis filamenta adaequantibus."

EXPANDED DIAGNOSIS OF HOLOTYPE: Shrub, more than 40 cm tall, freely branched; lower stem 4 mm in diameter, smooth, brown, the nodes 5–6 mm in diameter; leafy branchlets

0.5–1.5 mm in diameter, square in cross section; internodes 5–60 mm long, glabrous; nodes with a ring of white pilosulous hairs above the petiole bases; leaf scars 1–2 mm wide, transverse, narrowly lunate; bundle scars obscure; young leaves remotely pilosulous but quickly glabrate; petioles 3–12 mm long, slender, glabrous; blades obovate to elliptic or oblanceolate, all widely obtuse, the base cuneate and decurrent, chartaceous, above dark green, below paler, but drying brown, the veins visible above and more so below, the secondary veins 4 in each half, curved ascending, in-arched remote from the margin, the principal leaves (that is, those of the main branches) 3.2–4 cm long, 1.5–1.8 cm wide, but those of the smaller axillary branchlets 1.9–3 cm long, 8–11 mm wide; inflorescences terminal, sessile; spikes single or several together, 7–15 mm long; rhachis densely white pilosulous with hairs 0.7–0.8 mm long; rhachis bracts 1 mm long, 0.8 mm wide, suborbicular, the midrib thickened and raised, the apex acute or mucronulate, glabrous, except for the ciliate upper margins, ascending or divergent, persistent; floral lateral bracts 2–2.3 mm long, suborbicular, acute, scarious, the midrib raised but not protruded; 5 sepals; the outer ones 4.2 mm long, 1.2 mm wide, narrowly elliptic lanceolate, acute, navicular, the midrib evident only at base; the inner sepals 4 mm long, similar; androecium at base with a common tube 0.5 mm long, at its summit parted into 5 stamens, the filaments 1.5 mm long, subulate, flat, delicate; the anthers 0.5 mm long, oblong, of 2 parallel obtuse sacs, versatile; alternating with as many pseudostaminodia as long as the filaments, ligulate, bifid or trifid for 0.5 mm; pistil glabrous, with a narrowly obconic ovary 0.8 mm long; style 1.6 mm long, acicular; stigma hemispheric; fruit unknown.

HOLOTYPE: Iles Sandwich, Kauai Ile (= Hawaiian Islands, Kauai Island), 1851–1855, *J. Rémy* 208 (GH). Type examined.

ISOTYPE: (P)

As there are no subsequent collections of this species, it is obviously now extinct.

7. *Achyranthes Nelsonii* St. John, Pac. Sci. 30:13–15, fig. 4, 1976.

BRIEF DESCRIPTION: Branches strigulose, then glabrescent; leaves petioled; blades 15–25 mm long, 14–20 mm wide, thin coriaceous, obovate, the base cuneate, on both sides pilosulous with hairs 0.3 mm long; inflorescences terminal, spicate 4–11 mm long, 4–8 mm in diameter, capitate to short cylindric; rhachis hairs 0.5 mm long; rhachis bracts 1.3 mm long, 1 mm wide, ovate, acute; lateral floral bracts 1.8–2 mm long, 0.3–0.4 mm wide, elliptic, acute; outer sepal 4 mm long, 0.8 mm wide, elliptic with narrow ends, scarious; pseudostaminodia 2.5 mm long, ligulate, cleft 1/3 way into 3–4 subulate lobes.

HOLOTYPE: Sandwich Islands, *David Nelson* (BM). Nelson was botanist on Captain Cook's third voyage. This specimen was collected in 1779 on the island of Hawaii, in Kona, on the slopes above Kealahou Bay. The locality is now populous and frequently visited. As no one has made a subsequent collection of this plant, it is doubtless now extinct.

8. *Achyranthes reflexa* (Hbd.) comb. nov.

A. splendens Mart. ex Moq. in DC., var. *reflexa* Hbd., Fl. Haw. Is. 371, 1888; Drake, Ill. Fl. Ins. Mar. Pac. 7:271, 1892; St. John, Pac. Trop. Bot. Gard., Mem. 1:152, 1973.

Figure 5

ORIGINAL DIAGNOSIS: "Leaves as in β (i.e. var. *rotundata*, which has the blades obovate, broadly rounded, silvery on both faces). Rhachis of spike thick, densely woolly. Flowers ovoid, 3'', angular, completely reflexed at an early period, hard, almost cartilaginous. Lateral bracts ovate, oblique and callous at the base, $\frac{1}{2}$ – $\frac{2}{3}$ the length of the flower, the very stiff median nerve not prolonged into an awn. Outer sepals 5-nerved. Staminodes as before. (i.e. as in *A. splendens*, little shorter than the stamens, broad oblong, lacinate or fimbriate at the apex.)."

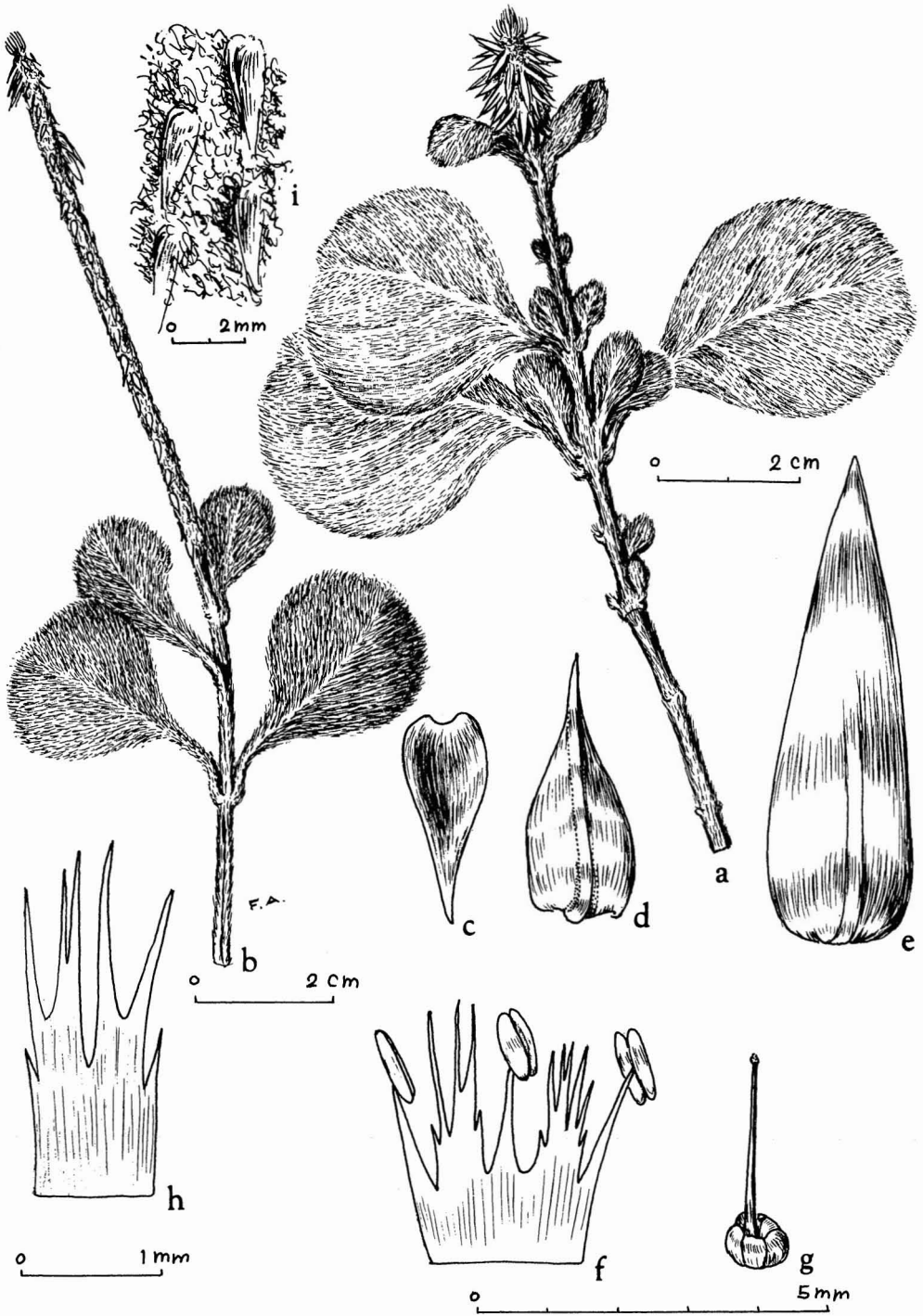


FIGURE 5. *Achyranthes reflexa* (Hbd.) St. John, from clastotype. *a*, *b*, habit, $\times 1$; *c*, rhachis bract, proximal side, $\times 10$; *d*, lateral floral bract, outer view, $\times 10$; *e*, outer sepal, $\times 10$; *f*, androecium, $\times 10$; *g*, pistil, $\times 10$; *h*, pseudostaminodium, $\times 20$; *i*, rhachis with hairs and bracts, $\times 5$.

EXPANDED DIAGNOSIS OF CLASTOTYPE AND ISOTYPE: Erect shrub; all vegetative parts whitened by a dense appressed pilosulous tomentum; leafy stems 1.8–2.5 mm in diameter, square; older branches 4–5 mm in diameter, subterete, glabrate, smooth, pale brown; internodes 11–35 mm long; petioles 5–7 mm long, channeled above; blades 3–4.7 cm long, 2.2–3.7 cm wide, broadly obovate to suborbicular, the apex broadly obtuse, the base cuneate, thick firm chartaceous, the 5 secondary veins in each half curved ascending, visible only below, the blade densely appressed white pilosulous, but above appearing greenish, below white; inflorescence terminal; peduncle 1–1.7 cm long; spike 7.8–10 cm long; rhachis densely white tomentose, with hairs 2–2.5 mm long, these making the rhachis appear 3.5–4 mm in diameter; rhachis bracts 3–3.5 mm long, 1 mm wide, lanceolate, the sides membranous, ciliate, the thickened midrib not excurrent; floral lateral bracts 4 mm long, 1.8 mm wide, the membranous body ovate, acute, pilosulous ciliate, the thickened midrib excurrent for 0.7–1 mm as a slightly out-curving awn; sepals 7 mm long, green, scarious, the outer ones 1.4 mm wide, lanceolate, acute, the lateral margins membranous, the midrib visible in the lower third, but inconspicuous; inner sepals similar, but narrower; androecium of a common membranous tube 1 mm long, bearing 5 stamens, the free filament tips 1.5 mm long, subulate, flattened, the anthers 0.7 mm long, 0.3 mm wide, oblong; the 5 pseudostaminodia alternating with the stamens and slightly exceeding them, membranous, cleft more than half-way into about 7 subulate flat lobes; ovary 1 mm in diameter, oblate globose; style 1.8 mm long, filiform; stigma subcapitate, papillose.

HOLOTYPE: Hawaiian Islands, Molokai Island, pali of Kalaupapa, *W. Hillebrand* (B). The type specimen destroyed.

CLASTOTYPE: (BISH)

ISOTYPE: (GH)

This species is known only by the type collection. Since it has not been found again

during the last 100 years, it is doubtless extinct.

9. *Achyranthes rotundata* (Hbd.) comb. nov.

A. splendens Mart. ex Moq. in DC., var. *rotundata* Hbd., Fl. Haw. Is. 371, 1888;

A. splendens, var. *rotundifolia* Hbd. ex Drake (sphalm.), Ill. Fl. Ins. Mar. Pac. 7:271, 1892; St. John, Pac. Trop. Bot. Gard., Mem. 1:152, 1973.

Figure 6

ORIGINAL DIAGNOSIS: "Leaves obovate, broadly rounded, silvery on both faces. Flowers 3–4'."

DIAGNOSIS OF NEOTYPE (Bishop 4/4/58): Shrub more than 41 cm tall; all the herbage covered by a dense white appressed pilose tomentum; leafy stems 2–4 mm in diameter, square; older branches 5–7 mm in diameter, terete, glabrate, brown, smoothish but with longitudinal fissures; internodes 8–42 mm long; leaf scars 3.5 mm wide, lunate with obtuse ends; bundle scars 5, in a curve; petioles 3–13 mm long, broadly channeled above; blades 2–5.6 cm long, 2–4.7 cm wide, broadly obovate to suborbicular, the apex widely obtuse, the base cuneate, subcoriaceous when dried; secondary veins 6–9 in each half, curved ascending, evident on both sides, densely appressed white pilosulous tomentose on both sides, but appearing greenish above, and white below; inflorescence terminal; peduncle 6–28 mm long; spike 5–13.5 cm long, 11–14 mm in diameter; flowers divergent, then reflexed, tardily deciduous; rhachis densely white pilosulous with hairs 0.6 mm long, these making the rhachis appear 3 mm in diameter; rhachis bracts 4 mm long, 1.2 mm wide, lanceolate, scarious, glabrous within, but without sparsely pilose near the base and pilosulous ciliate; 2 lateral floral bracts 5.5 mm long, the body 3.5 mm long, the body cordate ovate, acute, pale, scarious, except for the membranous, minutely ciliate margins, the heavy raised midrib prolonged into a 2 mm out-curving awn; outer sepals 6.3 mm long, 2.2 mm wide, narrowly lanceolate, green, the midrib evident, but not prolonged;

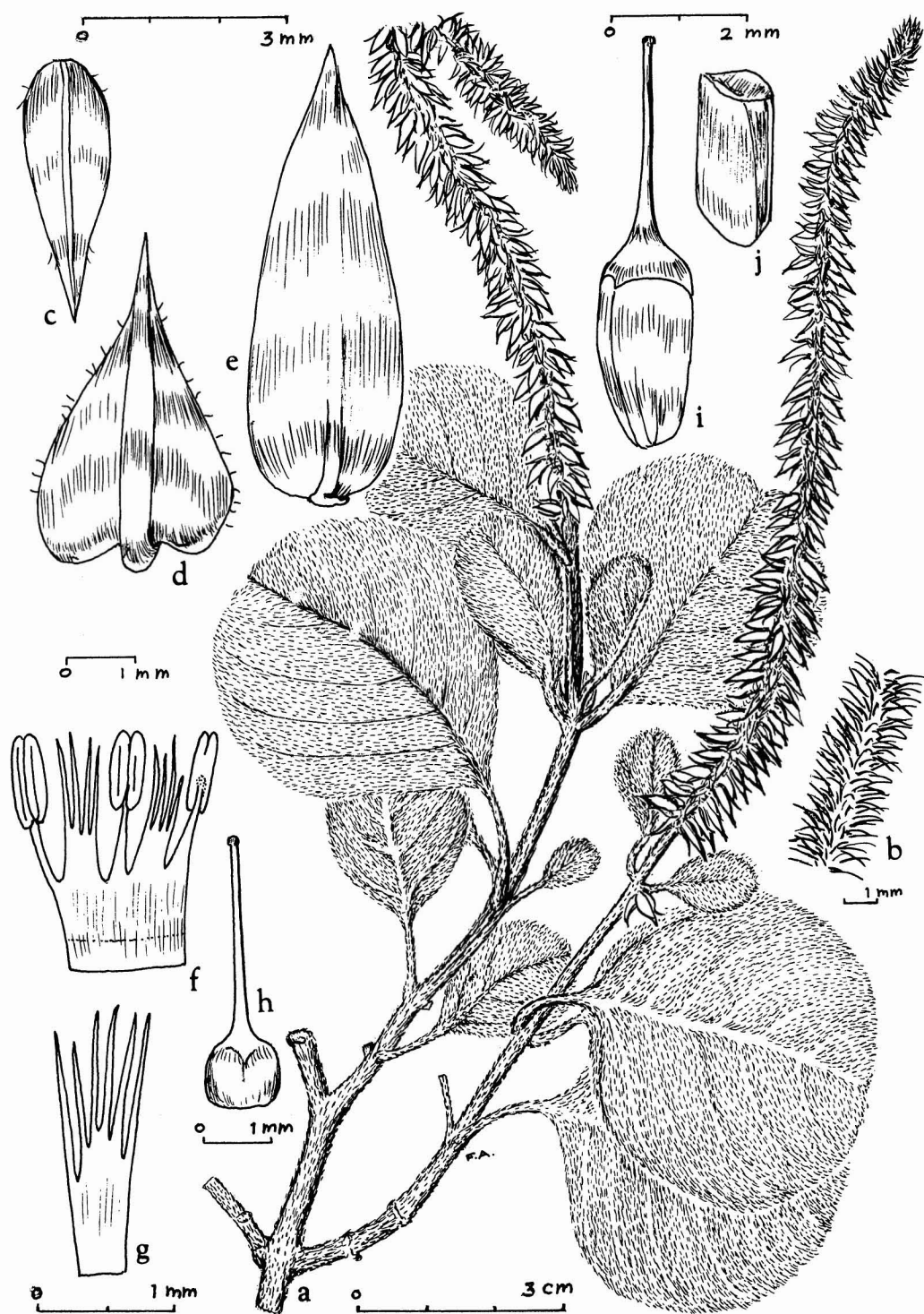


FIGURE 6. *Achyranthes rotundata* (Hbd.) St. John, from neotype. *a*, habit, $\times 1$; *b*, rhachis and hairs, $\times 5$; *c*, rhachis bract, distal side, $\times 10$; *d*, lateral floral bract, outer view, $\times 10$; *e*, outer sepal, $\times 10$; *f*, androecium, $\times 10$; *g*, pseudostaminodium, $\times 20$; *h*, pistil, $\times 10$; *i*, fruit, $\times 10$; *j*, seed, $\times 10$.

androecium of a membranous filament tube 0.8 mm long, the 5 free filament tips 1.3 mm long, subulate, attached versatily; anthers 1.3 mm long, 0.4 mm wide, oblong-ellipsoid, the base subcordate; pseudostaminodia 2 mm long, fimbriate with 5–6 subulate lobes extending more than halfway; ovary 0.7 mm long, subglobose; style 3.7 mm long, filiform; stigma low convex; fruit with the body 3.7 mm long, 1.3 mm in diameter, cylindric, brown, the apex oblate conic, bearing the 3-mm style; seed solitary, 2.8 mm long, 0.8 mm in diameter, brown, cylindric, with a truncate apex.

EXPANDED DESCRIPTION: Shrub 0.5–2 m tall; all vegetative parts whitened by a dense appressed white pilosulous tomentum; leafy stems 1.8–4 mm in diameter, square; older branches 4–7 mm in diameter, glabrate, gray to brown, smoothish but with longitudinal fissures; internodes 0.8–6.5 cm long; leaf scars 3–3.5 mm wide, lunate with obtuse ends, pale; bundle scars 5, in a curve; leaves opposite; petioles 3–18 mm long, broadly channeled above; blades 1.7–5.6 cm long, 1–4.7 cm wide, obovate to suborbicular, obtuse, the base cuneate, subcoriaceous when dried, secondary veins 6–9 in each half, curved ascending, densely appressed white pilosulous tomentose on both sides, but appearing greenish above, whitish below; inflorescences terminal; peduncle 6–34 mm long; spike 5–24.5 cm long, 11–17 mm in diameter, the flowers divergent, then somewhat reflexed and long persistent; rachis densely white pilosulous with hairs 0.6 mm long, these making the rachis appear 2–2.8 mm in diameter, rachis bracts 4–4.2 mm long, 1–1.2 mm wide, lanceolate, pilosulous ciliate, the sides membranous, the midrib thickened but not excurrent; lateral floral bracts 4.8–5 mm long, 2.9 mm wide, the body ovate lanceolate, membranous, ciliolate near the base, the thickened midrib projecting for 1–1.5 mm as a stramineous curved awn; sepals 6.7–7 mm long, lanceolate, glabrous, scarious but for the membranous margins; inner sepals narrowly lanceolate, 1.2 mm wide; androecium with a filament tube 1.5 mm long, the free filament

tips 1 mm long, the 5 anthers 1.2 mm long, 0.3–0.4 mm wide, oblong ellipsoid; pseudostaminodia 2 mm long, 4–6-lacerate halfway down; ovary 0.8 mm in diameter, globose; style 2.5 mm long, acicular; stigma slightly the wider, semicapitate, dark red; capsule 2.8 mm long, 1 mm in diameter, ellipsoid; seed 2.3 mm long, prismatic.

TYPE LOCALITY: Hawaiian Islands, "Oahu! Waianae and Cape Kaena, near the sea." *W. Hillebrand* (B). Type destroyed.

NEOTYPE: Hawaiian Islands, Oahu Island, Kaena Point, 4 April 1958, *Brenda Bishop* (BISH).

SPECIMENS EXAMINED: Hawaiian Islands, Oahu Island, Barbers Point, April 1959, *J. W. Beardsley*; Barbers Point at lighthouse, rough coral platform, with *Lycium sandwicense*, *Myoporum sandwicense*, *Capparis sandwichiensis*, *Portulaca*, *Sesuvium*, 22 March 1967, *S. Carlquist* 2,425 (BISH, GH); Barbers Point, 12 March 1946, *E. L. Caum*; Kaena Point, Keawaula, Waianae Range, dry rocky talus slope, 200 ft alt., 11 November 1947, *R. S. Cowan* 731 (GH); Barbers Point, coral plain, 4 February 1948, *Cowan* 792; Keawaula Valley, and rocky slope near coast, 28 June, 1931, *O. Degener* 12,098 (BISH, GH, US); east of Barbers Point, arid limestone near coast, 30 August 1931, *Degener* 12,099 (BISH, GH, US); Ewa coral plain, near Barbers Point lighthouse, edge of coral pits containing brackish water which recedes with the tide, 10 June 1952, *E. J. Ford*; Barbers Point, thin soil on raised reef, 11 August 1937, *F. E. Egler* 37-267; between Makua Valley and Kaena Point, 25 February 1911, *C. N. Forbes* 1,651.0 (BISH, US); coast south of Kaena Point, dry brushy slope, 15 m alt., 30 May 1936, *F. R. Fosberg* 13,139 (BISH, US); beach east of Barbers Point, common at edge of *Prosopis* forest on dry coral limestone, 1 m alt., *Fosberg* 29,534 (BISH, US); along coast 2 km east of Barbers Point, local in openings on coral rock flats, 2 m alt., 19 March 1948, *Fosberg* 29,693 (BISH, GH); $\frac{1}{2}$ mile east of Barbers Points, inside military base, in scrub behind dunes, 10 ft alt., 6 July 1969, *J. Henrickson* 3,835; Barbers Point,

arid coralline plain, 5 ft alt., 23 October 1967, *D. Herbst* 669 (BISH, HAW); Barbers Point, behind lighthouse, arid coralline plain, with *Lycium*, *Capparis*, *Sporobolus*, *Myoporum*, and *Sicyos*, 5 ft alt. 22 March 1968, *D. Herbst* 990 (HAW); Barbers Point, Ewa coral plain, on raised coral reef, 13 December 1953, *C. H. Lamoureux* 7 (HAW); Kaena, talus slopes, 27 March 1915, *V. MacCaughy*; Barbers Point, coral plain near beach, 8 August 1934, *M. Neal*; Barbers Point, 13 December 1953, *W. J. Newhouse*; Barbers Point, November 1919, *J. F. Rock* 17,039 (BISH, GH); Waianae Mts., 1912, *J. F. Rock*; beyond Kaena, at foot of cliffs, 1 November 1958, *Rock & M. F. Landgraf*; $\frac{1}{2}$ mile east of Barbers Points, by coral sink hole, 15 ft alt., 27 April 1952, *H. St. John* 24,811 (BISH, GH); common in coral holes behind beach at west end of Ewa airstrip, 4 February 1948, *G. L. Webster* 1,261; in thickets of *Leucaena*, *Myoporum*, on eroded coral platform near sea level, east of Barbers Point, 20 June 1968, *Webster, R. Gankin & D. Herbst* 13,838 (GH).

Oahu: 1851–1855, *J. Rémy* 206 (BISH, GH, P); Kapalama Heights, cult., 28 April 1939, *A. F. Judd*.

Woahoo, [= Oahu], Maio 1825, *Macrae* (GH).

Sandwich Islands: *Gaudichaud* (P); voyage of *Uranie*, *C. Gaudichaud* 42 (P); U.S. Pac. Exploring Expedition (US).

DISCUSSION: This species is abundant on the seaward portions of the Ewa coral plain. It may once have grown along the shore to the northward. Hillebrand recorded it at Waianae, and there is a specimen in Rock's herbarium, with vague penciled data, Waianae Mts. It also occurs near Kaena Point, on the lower, basalt talus slopes, not on coral. It may well once have grown all along the western shore of Oahu from Barbers Point to Kaena Point, but it is definitely endemic to Oahu.

Drake, Ill. Fl. Ins. Mar. Pac. 7:271, 1892; St. John, Pac. Trop. Bot. Gard., Mem. 1:152, 1973.

NOM. VERN.: "lo'e" [roë, fide Gaudichaud] (Hawaiian language)

Figure 7

ORIGINAL DIAGNOSIS: "Caule fruticoso ascendente subangulato glabriusculo subfusco, ramis divaricatis vix tetragonis pubescentibus, foliis breviter petiolatis ovalibus utrinque attenuatis obtusis velutino sericeis supra glaucis subtus glauco-aureis, spicis breviusculis angustis subvirgatis obtusiusculis densifloris, floribus haud nitidis subfuscis, bractearum lateralium aristâ limbo paulo brevior, calyce bracteis duplo longiore, sepalis subtrinerviis subglabris. 2 In ins. Sandwichensibus (*Gaudich.!* n. 42, Roë)."

EXPANDED DESCRIPTION: Shrub 1–2 m tall; young shoots appressed white ascending pilosulous; leafy stems 1.5–4 mm in diameter, square, similarly pilose; older branches 3–6 mm in diameter, smoothish, brown; internodes 0.4–7 cm long; leaf scars 2.5–4 mm wide, lunate, pale; bundle scars 5, in a curve; petioles 8–20 mm long, channeled above, appressed white pilosulous; blades 3–10 cm long, 1.2–7.2 cm wide, obovate, the apex obtuse or subacute, the base cuneate and decurrent, thick firm chartaceous, the secondary veins 6–7 in each half, curved ascending, obscure or fairly evident, densely white pilose tomentose on both sides, above appearing greenish, below white; inflorescence terminal; peduncle 10–25 mm long, densely white pilosulous; spike 8–25 cm long, 15–22 mm in diameter, dense, the flowers divergent for a long span, later descending at about 45° and long persistent; rhachis densely persistent pilosulous, the hairs 2 mm long, tangled and making the rhachis appear 2.5–3 mm in diameter; rhachis bracts (4–) 5–6 mm long, 1.5 mm wide, lanceolate, acuminate, the apical quarter a mere awn, and just at base pilosulous ciliate, beyond that glandular atomiferous on the membranous margins, 1-ribbed; floral lateral bracts (4–5) 6.5–7 mm long, 2 mm wide, ovate, acuminate; outer sepals 8–10.5 mm long, 2 mm

10. *Achyranthes splendens* Mart. ex Moq. in DC., Prodr. 13(2): 316, 1849; H. Mann, Jr., Amer. Acad. Arts Sci., Proc. 7:200, 1867; Hillebrand, Fl. Haw. Is. 371, 1888;

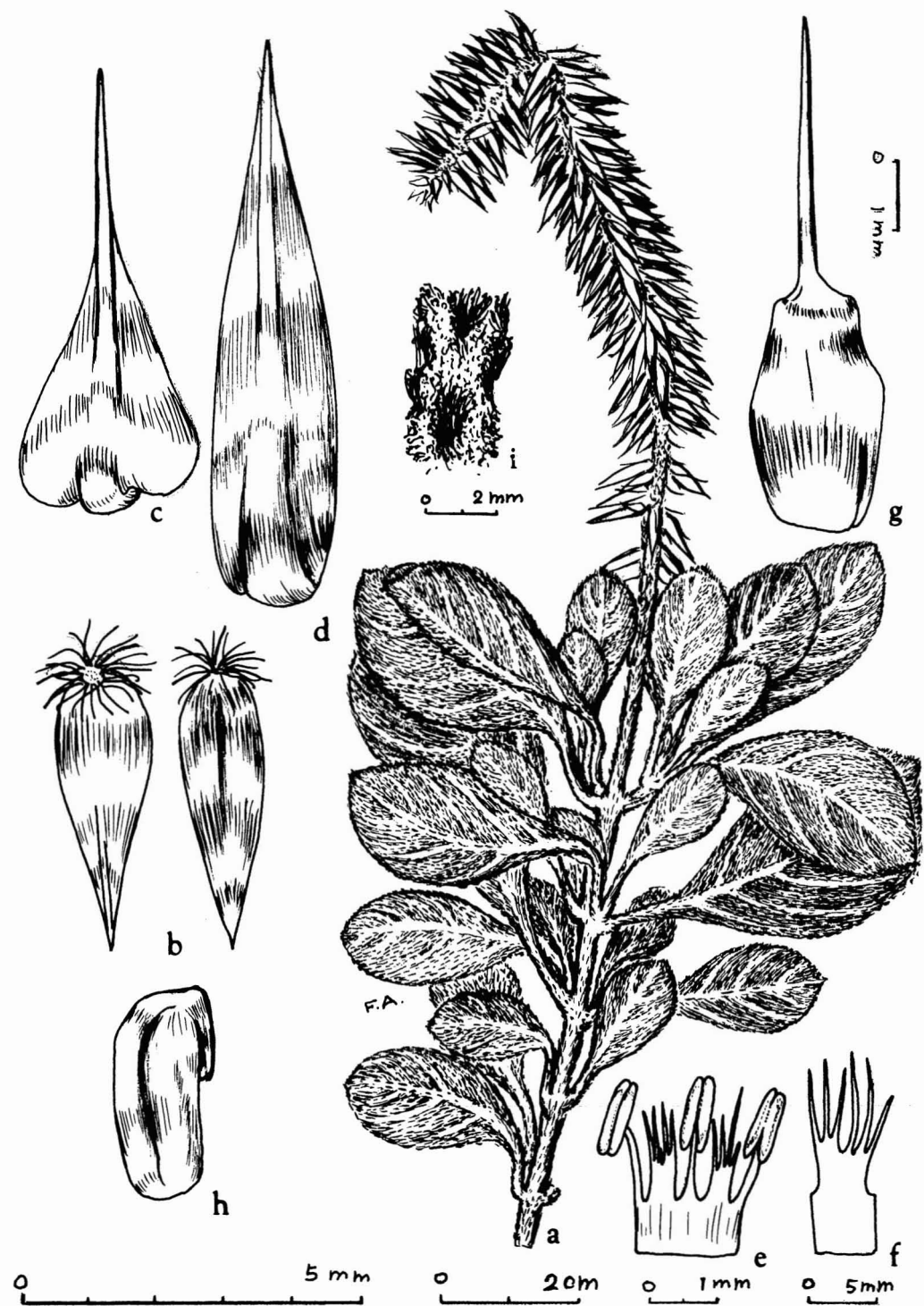


FIGURE 7. *Achyranthes splendens* Mart. a, habit, $\times 1$ [from Maui, Degener & Wiebke 3,299 (BISH)]; the following parts from the holotype: b, rhachis and bracts, distal and proximal sides, $\times 10$; c, lateral floral bract, outer view, $\times 10$; d, outer sepal, $\times 10$; e, androecium, $\times 10$; f, pseudostaminodium, $\times 20$; g, pistil, $\times 10$; h, seed, $\times 10$; i, rhachis with hairs and bract scars, $\times 5$.

wide, lanceolate, the middle third scarious and dark, the sides pale and membranous; androecium with a united filament tube 0.7 mm long; free filament tips 1 mm long; 5 anthers 1 mm long, 0.3 mm wide, oblong-ellipsoid, dark; pseudostaminodia 1.5 mm long, 5–3-lacerate; capsule 3 mm long, 1.3 mm wide, cylindric, dark brown; seed of the same size and shape, white, fleshy, with a pale yellowish radicle running up one side, over the top and halfway down the other side.

HOLOTYPE: Ins. Sandwichensibus, *Gaudichaud* 42 (P). Type examined.

SPECIMENS EXAMINED: Hawaiian Islands, west Maui Island, from Papawai Point toward Puu Anu through Manawainui Gulch, arid region beside cliffs, 12 July 1927, *O. Degener & H. Wiebke* 3,299 (BISH, US); near McGregor, on barren rocky hills, 10 July 1927, *Degener & Wiebke* 3,300 (US); Olowalu Valley, arid rocky slope, 28 April 1939, *Degener* 17,489 (BISH, GH); Wainee Gulch, on dry banks, May 1910, *C. N. Forbes* 76.M. (BISH, GH, US); Olowalu Valley, 8 May 1920, *Forbes* 2,262a.M. (BISH); Olowalu Canyon, near bottom of canyon with *Artemisia*, *Euphorbia*, 360 m alt., 19 April 1971, *D. Herbst, W. Gagné, S. Montgomery* 602; ridge back of Wailuku, *W. Hillebrand & J. M. Lydgate*; Kohama Gulch, near Lahaina, 1700 ft alt., October 1955, *K. H. Korte*; Kaanapali, 26 August 1910, *J. F. Rock* 8,170 (BISH, GH, US); Olowalu Valley, 3½ miles from coast, on face of basalt cliff, 1100 ft alt., 25 July 1968, *H. St. John* 26,751; Paunau Ditch Trail, 1600 ft alt., 21 December 1955, *H. A. Woolford* 90; West Maui, *Hillebrand* (GH).

East Maui: Kula, *W. Hillebrand*; Maui and Oahu, U.S. Exploring Expedition (GH).

Lanai: Maunalei Valley, 25 June 1913, *Forbes* 171.L.; Kanepuu (cult. from Maunalei), 28 May 1927, *G. C. Munro* 18;

Maunalei Valley, 6 September 1913, *Munro* 67 and 123; Maunalei Valley, 1 July 1917, *Munro* 440.

DISCUSSION: The holotypic specimen in the Paris herbarium is a branch 39 cm long, with leaves, 3 major spikes 15–19 cm long, and 2 small lateral ones. The spikes still retain a few attached flowers, and there are several loose ones. The rhachis bracts are 4 (–5) mm long; the lateral floral bracts are 4–5 mm long; and the outer sepals are 9 mm long. This is less distinct than most recent collections from Maui and Lanai, but it is the type of the species, and best matches the collections from west Maui, where *Gaudichaud* is known to have collected. Since the holotypic specimen is meager, an illustration is made from a similar, but adequate, specimen: Papawai Point, west Maui, *Degener & Wiebke* 3,299 (BISH).

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